

# Massachusetts STD, HIV/AIDS and Viral Hepatitis Surveillance Report: 2013



Massachusetts  
Department of Public Health  
*Bureau of Infectious Disease*  
Division of STD Prevention and HIV/AIDS Surveillance  
Division of Epidemiology and Immunization

STD, HIV/AIDS AND VIRAL HEPATITIS SURVEILLANCE REPORT 2013

Massachusetts Department of Public Health  
Bureau of Infectious Disease  
Division of STD Prevention and HIV/AIDS Surveillance  
Office of HIV/AIDS  
Division of Epidemiology and Immunization  
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## Executive Summary 2013

The annual publication of the Massachusetts STD, HIV/AIDS, and Viral Hepatitis Surveillance Report provides an occasion to reflect upon trends in these diseases within the Commonwealth of Massachusetts

In 2013, the following trends in the three most commonly reported bacterial STIs in Massachusetts were observed:

- Infectious syphilis (primary, secondary, and early latent syphilis) incidence rates continued to increase yearly to a ten-year high of 10.5 per 100,000. Although infectious syphilis remains relatively uncommon overall, compared to historical incidence rates, the infection remains at epidemic levels among men who have sex with men.
- The total number of gonorrhea cases increased in 2013 by 18%, with a 25% increase in the number of gonorrhea cases among males. Gonorrhea continues to affect non-white populations living in major urban centers disproportionately.
- Chlamydia cases have plateaued with about 23,000 cases reported in each of the past three years (2011 to 2013). Case ascertainment is reflective of access to screening with more sensitive laboratory testing and/or increased utilization of electronic laboratory reporting. Moreover, there are gaps in our understanding of what proportion of chlamydia cases will progress to complications, such as epididymitis, pelvic inflammatory disease, ectopic pregnancy, infertility, or chronic pelvic pain.<sup>1</sup>

Regarding HIV/AIDS, notable trends in 2012<sup>2</sup> included the following:

- The number of persons known to be living with HIV/AIDS in Massachusetts increased to over 18,000 in 2012 due to newly reported infections and because survival continued to improve.
- Black and Hispanic/Latino residents have significantly higher rates of HIV infection compared to white residents.
- Male-to-male sex remains the single most frequently identified exposure mode among newly diagnosed HIV infection cases.

With regard to viral hepatitis, we observed the following trends in 2013:

- Confirmed new cases of chronic hepatitis B continued to decline, a trend due in large part to near universal immunization of children against hepatitis B. Given that the highest risk population for chronic hepatitis B infection is immigrants from endemic countries, any shifts in testing access for this population could also influence the numbers of reported cases.
- There has been an overall decline in the number of newly diagnosed hepatitis C cases reported in Massachusetts since 2004. However, with an average of over 5,500 cases reported in each of the past ten years (2004 to 2013), hepatitis C remains one of the highest volume reportable infections. Despite the overall decline in newly reported cases, there continues to be an increase of hepatitis C cases reported among adolescents and young adults, reflecting ongoing transmission among young people injecting drugs in the state.

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<sup>1</sup> Gottlieb SL. Summary: the natural history and immunobiology of *Chlamydia trachomatis* genital infection and implications for chlamydia control. *Journal of Infectious Diseases* 201:S190-204, 2010.

<sup>2</sup> Due to reporting delays related to site-specific reporting issues, all HIV/AIDS data reflect HIV diagnosed through 2012.

Highlighted on pages 16–23 are trends within special populations disproportionately affected by STIs, HIV/AIDS, and/or viral hepatitis. Massachusetts data are reflective of a number of national trends among women, minorities (both sexual and racial/ethnic minorities), and youth. Where we differ is in disparities observed in reported STIs among certain racial/ethnic and sexual minorities. It remains to be determined whether this reflects improved access to care leading to more screening and identification of infection, true increases in infection within certain minority populations, or true decreases in infection within non-minority populations. Improvements in reporting systems, which provide more complete information on other possible risk and protective associations, are critical for improving our understanding of disparities in reportable diseases.

The focus of this annual surveillance report is necessarily on diseases reportable to the state and cannot explore all social and behavioral determinants of health. However, it should be recognized that sexually transmitted infections, including HIV/AIDS and viral hepatitis, occur at the nexus of individual human behavior, community risk, clinical diagnosis and treatment, and public health prevention and control. The intended audience for this annual surveillance report includes the clinicians and the laboratory professionals who report these cases, as well as the community organizations, local public health departments, policymakers, and researchers who are interested in the sexual health and well-being of residents of the Commonwealth of Massachusetts. We welcome feedback, and invite you, the reader, to begin by thinking in terms of disease statistics, but end by acting in terms of health promotion.

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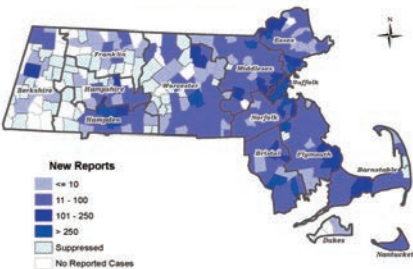
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In 2013, there were 23,579 reported chlamydia cases in Massachusetts, making chlamydia the most reported infection in the Commonwealth. Chlamydia infection is widely distributed in Massachusetts. There were no major shifts in the geographic distribution of cases within the state in the past year.

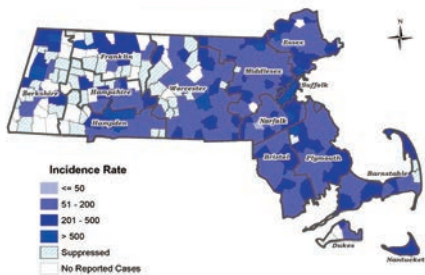
Additional information about chlamydia infection and other STIs is available online at [www.mass.gov/dph/cdc/std](http://www.mass.gov/dph/cdc/std).

**Reported Chlamydia Cases by City/Town  
Massachusetts, 2013**



Data Source: MDPH, Bureau of Infectious Disease

**Chlamydia Incidence Rate by City/Town  
Massachusetts, 2013**



Data Source: MDPH, Bureau of Infectious Disease

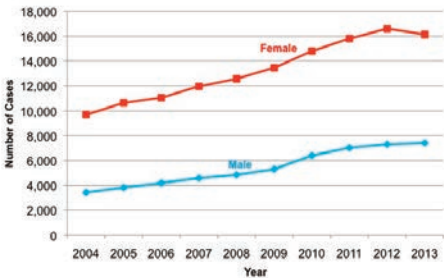
The overall Massachusetts chlamydia incidence rate of 352 per 100,000 is lower than the national rate of 457 per 100,000.<sup>3</sup> Massachusetts ranked 10<sup>th</sup> lowest in chlamydia incidence rate among the 50 states. The five highest chlamydia incidence rates were in Provincetown, Lawrence, Springfield, Boston, and Brockton. Throughout the state, the majority of cities and towns fall into the 50 to 200 cases per 100,000 population range.

The total number of reported chlamydia cases in Massachusetts has nearly doubled in the past ten years, from 13,131 in 2004 to 23,579 in 2013.

There was a 2% decrease in the number of cases reported in 2013 compared to 2012.

Of the total reported cases in 2013, 7,416 (31%) were in men, and 16,140 (69%) were in women. The greater number of chlamydia cases among women is a combined effect of increased incidence and a higher level of screening of women.

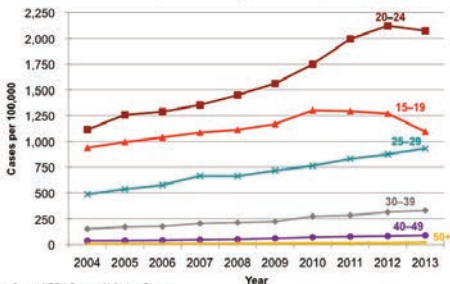
**Chlamydia Cases by Gender, Massachusetts,  
2004–2013**



Data Source: MDPH, Bureau of Infectious Disease

<sup>3</sup> Please note all national STD rates cited are from 2012; Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2012. Atlanta: U.S. Department of Health and Human Services; 2014.

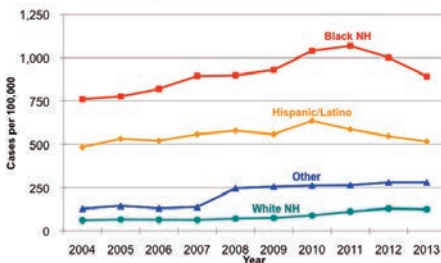
**Chlamydia Incidence Rate per 100,000 by Age, Massachusetts, 2004–2013**



Across age groups, chlamydia incidence rate has remained highest among adolescents and young adults from 2004 to 2013. In 2013, the chlamydia incidence rate in Massachusetts among adolescents (ages 15-19) was 1,093 per 100,000 compared to 2,002 nationally. The rate among young adults (ages 20-24) in Massachusetts was 2,073 cases per 100,000 compared to 2,502 nationally. For the first time in ten years, there was a decrease in the incidence rate among both the youngest age groups in 2013 compared to 2012. The chlamydia incidence rate decreased by 14% among adolescents (ages 15-19) and by 2% among young adults (ages 20-24). It remains to be seen if this one-year change in rate will be an ongoing trend.

Historically, members of communities of color have been disproportionately affected by STIs. In 2013, compared to the white population, the incidence rate of reported chlamydia infection in Massachusetts was seven times higher in the black and four times higher in the Hispanic/Latino population. Disparities in the chlamydia incidence rate in Massachusetts have decreased in recent years. In 2004, the chlamydia incidence rate was 12 times higher in the black and eight times higher in the Hispanic/Latino population, compared to the white population. Since 2008, changes in electronic reporting of laboratory results indicating STI cases to MDPH resulted in an increased proportion of STI cases being categorized as “other” race. Thus, as of 2008, increases in the rate of STIs in the “other” category may be related to electronic reporting rather than increase in incidence in these populations. Please note that cases with unknown race/ethnicity, which account for an average of 34% of chlamydia cases diagnosed from 2004 to 2014, are no longer included in this analysis.

**Chlamydia Incidence Rate per 100,000 by Race/Ethnicity, Massachusetts, 2004–2013**



CHLAMYDIA SCREENING PROJECTS

Since 1997, the Division of STD Prevention has worked to reduce infertility and other health consequences of chlamydia infection through screening and treatment of women who are at higher risk for infection.

In 2013, 11,171 specimens were tested for chlamydia infection in females and males. Eight percent were positive. 7,522 of these specimens were also tested for gonorrhea, of which 1% were positive. Test results from participating sites have yielded the following:

CHLAMYDIA SCREENING PROJECTS, PERCENT POSITIVE FOR CHLAMYDIA INFECTION AMONG FEMALES, MASSACHUSETTS 2013		
SITE TYPE	NUMBER TESTED	% POSITIVE
School-Based Health Centers	(N = 1,128)	7%
Correctional Facilities	(N = 563)	3%
Family Planning Clinics	(N = 5,082)	6%
Expanded STD Screening Sites*	(N = 2,900)	9%

Data Source: MDPH Bureau of Infectious Disease  
\*Includes females under age 26 years, tested at Prevention, Integrated Counseling, Screening, and Referral sites under IPP.

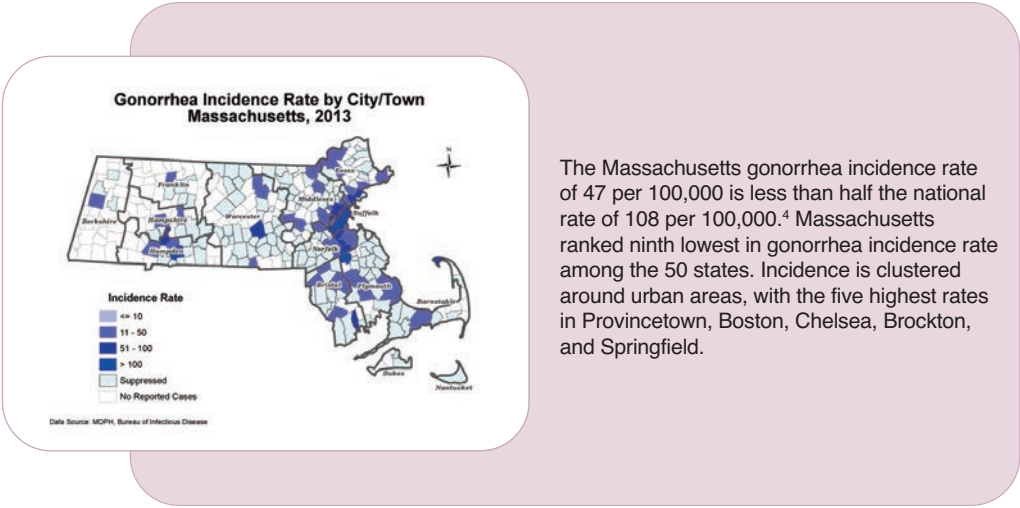
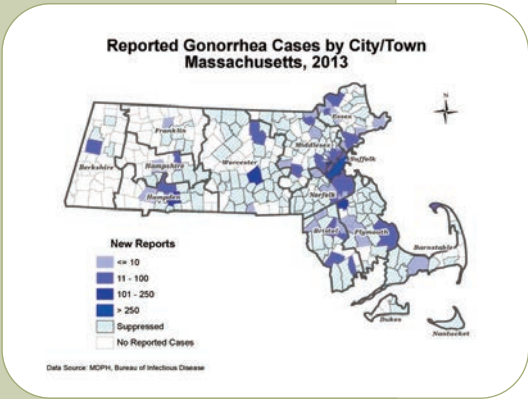
EXPEDITED PARTNER THERAPY

The MDPH promulgated regulations in August 2011 to permit clinicians to prescribe or dispense antibiotic treatment for the partners of persons with chlamydia infection without having to examine the partner, known as Expedited Partner Therapy (EPT). In January 2012, the chlamydia case report form was modified to capture information regarding partner notification and treatment including EPT. EPT is underutilized and underreported in Massachusetts relative to the need for this intervention and the likely pattern of provider prescribing of EPT. An analysis of laboratory-confirmed chlamydia cases in 2013 revealed that only 35% of cases had complete partner notification information and 25% had complete partner therapy information. Of those, 91% of providers reported partner notification, mainly via patient notification of partners. Providers offered EPT in 27% of cases (of the 25% with complete partner therapy information); of those, 49% used patient-delivered prescriptions only; 47% used patient-delivered medications; and 3% reported using a combination of methods; 7% reported that partners were treated in the provider’s office. Community health centers and school-based clinics reported using EPT in a larger proportion of patients compared to other clinical settings.

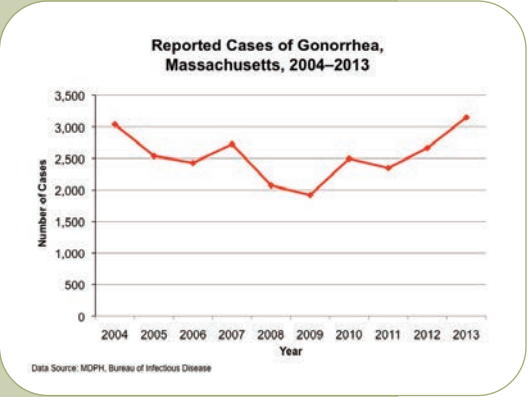


The number of gonorrhea cases in Massachusetts in 2013 was 3,151, an 18% increase from the previous year. Cases are far more common in urban locations.

Additional information about gonorrhea and other STIs is available online at [www.mass.gov/dph/cdc/std](http://www.mass.gov/dph/cdc/std).



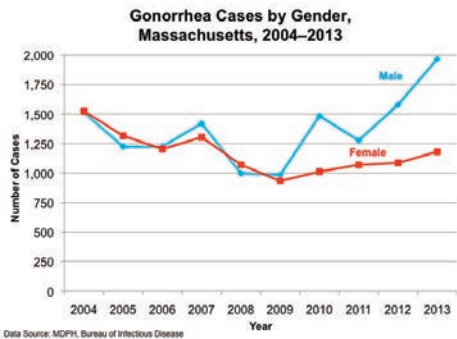
From 2004 to 2013, the number of gonorrhea cases fluctuated with both increases and decreases year-to-year and over the ten-year period. After declining from 3,039 cases in 2004 to 1,918 cases in 2009, the number of gonorrhea cases increased to 3,151 in 2013.



<sup>4</sup> Please note all national STD rates cited are from 2012; Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2012. Atlanta: U.S. Department of Health and Human Services; 2014.

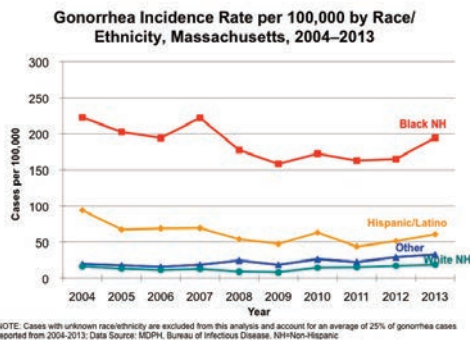
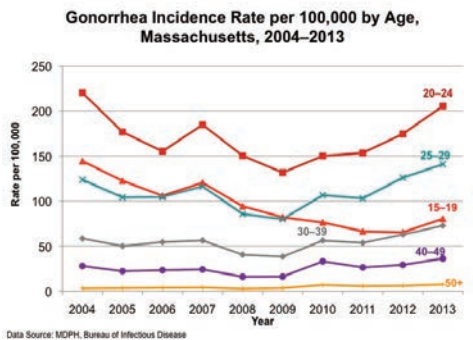


# GONORRHEA



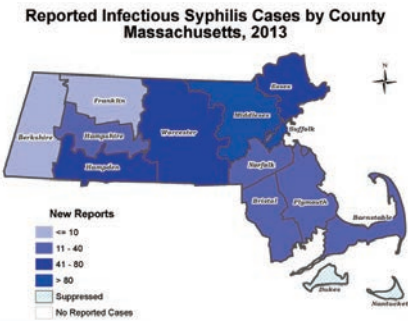
From 2004 to 2009, the number of gonorrhea cases reported among males was about the same as the number reported among females. From 2010 to 2013, more cases were reported among males than females (males accounted for an average of 59% of cases and females 41%).

From 2004 to 2013, the gonorrhea incidence rate per 100,000 was highest among young adults ages 20 to 24 years (205 per 100,000 in 2013). In 2013, the gonorrhea incidence rate among young adults (ages 20 to 24 years old) was four times the state-wide incidence rate; among 25 to 29 year olds (141 per 100,000) it was three times the state-wide incidence rate (47 per 100,000).

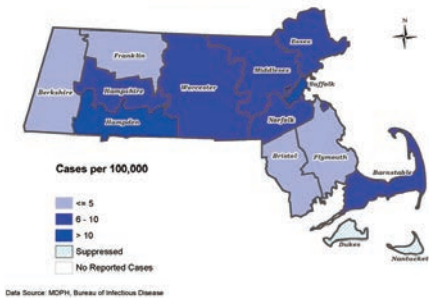


In 2013, in Massachusetts, the reported gonorrhea incidence rate was 11 times higher in the black population (195 cases per 100,000) and three times higher in the Hispanic/Latino population (61 cases per 100,000) compared to the white population (18 cases per 100,000). In 2008, changes in electronic reporting of laboratory results indicating STI cases to MDPH resulted in an increased proportion of STI cases being categorized as “other” race. Thus, as of 2008, increases in the rate of STIs in the “other” category may be related to electronic reporting. Please note that cases with unknown race/ethnicity, which accounted for an average of 25% of gonorrhea cases diagnosed from 2004 to 2013, are no longer included in this analysis.

In 2013, there were 701 infectious syphilis cases (primary, secondary, and early latent) reported in Massachusetts. Although infectious syphilis cases have been reported in almost all counties, 39% of the cases were reported in Suffolk County, 21% were reported in Middlesex County and 10% were reported in Hampden County. Additional information about infectious syphilis is available online at [www.mass.gov/dph/cdc/std](http://www.mass.gov/dph/cdc/std).

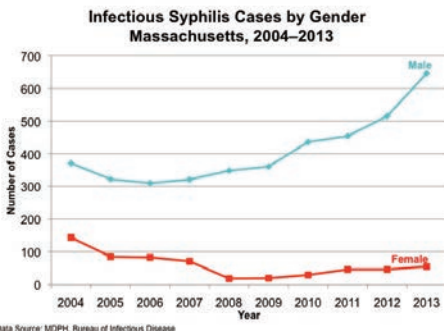


Reported Infectious Syphilis Incidence Rate by County Massachusetts, 2013

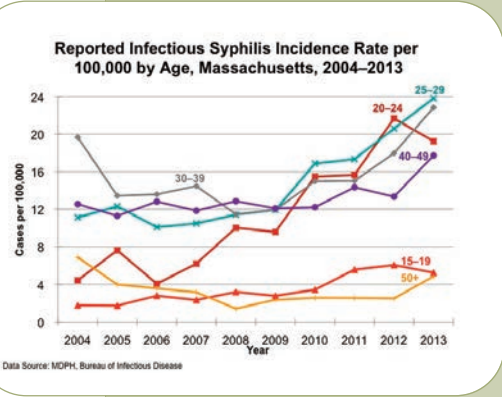


In 2013, the infectious syphilis incidence rate for Massachusetts was 11 per 100,000. This represents the highest infectious syphilis rate in the past ten years. By county, the highest infectious syphilis rates were in Suffolk (38 per 100,000 and Hampden (16 per 100,000); followed by Middlesex and Hampshire (at 10 per 100,000 and 9 per 100,000, respectively). Barnstable, Worcester, Essex, Norfolk, Bristol, Plymouth, Franklin and Berkshire Counties had syphilis rates less than seven per 100,000 and Dukes and Nantucket Counties had rates that were suppressed for confidentiality.

In Massachusetts, the male-to-female ratio of infectious syphilis cases increased from 3:1 in 2004, to 19:1 in 2009, then decreased to 12:1 in 2013. The elevated male-to-female ratio reflects an increase in the number of infectious syphilis cases diagnosed in men who have sex with men. Although the number of reported female cases is much smaller than male, it has more than doubled in the past five years from 2009 (N=19) to 2013 (N=55).

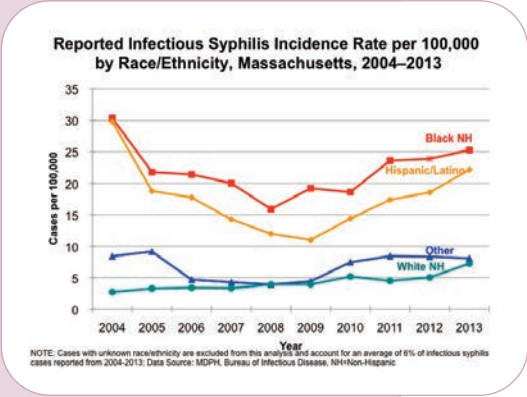


# SYPHILIS



In 2013, the infectious syphilis rate per 100,000 was highest among 25 to 29 year olds (24 per 100,000), followed by 30 to 39 year olds (23 per 100,000). In 2013, the infectious syphilis incidence rate among both 25 to 29 year olds and 30 to 39 year olds was more than double the overall incidence rate of 11 per 100,000.

In 2013, the infectious syphilis incidence rate was three times higher in both the black population (25 cases per 100,000) and Hispanic/Latino population (22 cases per 100,000) compared to the white population (7 cases per 100,000). Please note that cases with unknown race/ethnicity, which accounted for an average of 6% of infectious syphilis cases diagnosed from 2004 to 2013, are no longer included in this analysis.



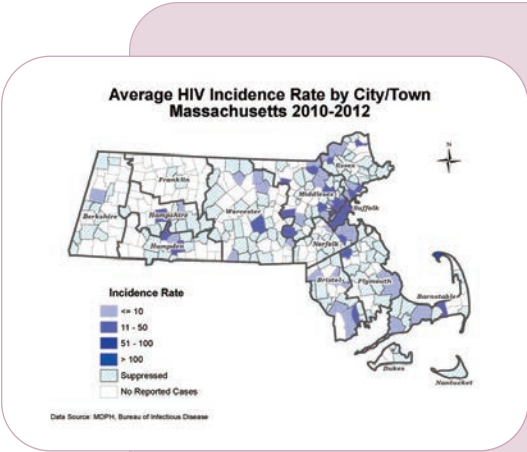
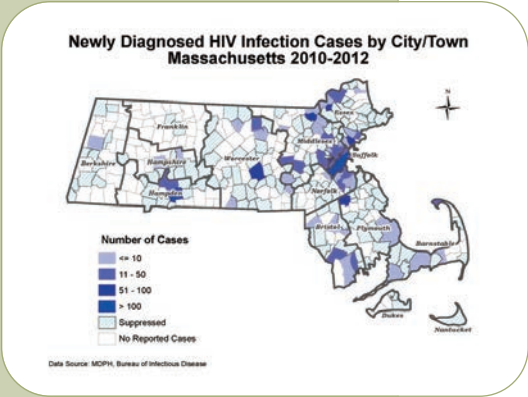
## SYPHILIS IN MEN WHO HAVE SEX WITH MEN (MSM)

In Massachusetts, MSM represent a higher-risk group for infectious syphilis. Of the 701 infectious syphilis cases in 2013, 536 (76%) were reported in MSM. Forty-three percent (N=232) of the MSM with infectious syphilis disclosed that they were co-infected with HIV. Forty-two percent of the infectious syphilis cases in MSM were reported in Suffolk County and 21% were reported in Middlesex County.

Transmission of syphilis can occur between men through unprotected oral and anal sex. Additional information and resources regarding MSM and STIs is available online at <http://www.mass.gov/eohhs/gov/departments/dph/prog-a-j/bcdc/factsheets.html>.

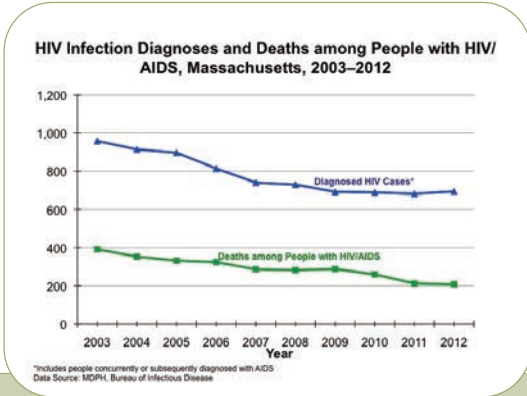
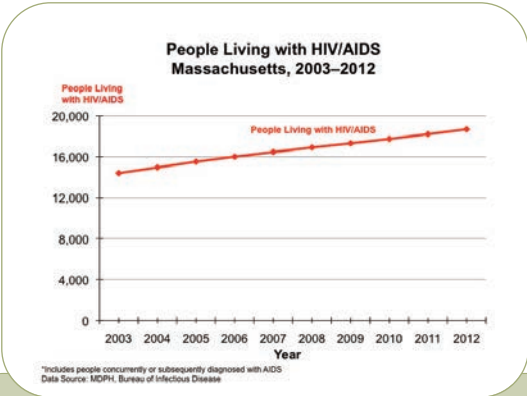
Of the 351 cities and towns in Massachusetts, 203 (58%) had at least one reported HIV infection diagnosis from 2010 to 2012. The majority of HIV infection diagnoses were reported in people living in large urban areas.

Regional, statewide and population based HIV/AIDS data are available online through the MDPH HIV/AIDS Epidemiologic Profile at: [www.mass.gov/eohhs/gov/departments/dph/programs/id/hiv-aids/epi-profile/](http://www.mass.gov/eohhs/gov/departments/dph/programs/id/hiv-aids/epi-profile/)



Of those cities and towns where HIV infections were diagnosed within the three-year period 2010 to 2012, the majority (75%) had rates under 10 per 100,000 population.

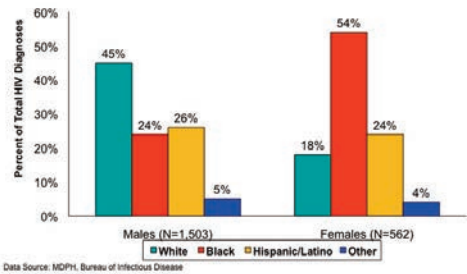
Provincetown had the highest rate of HIV infection diagnosis at 306 per 100,000 population.



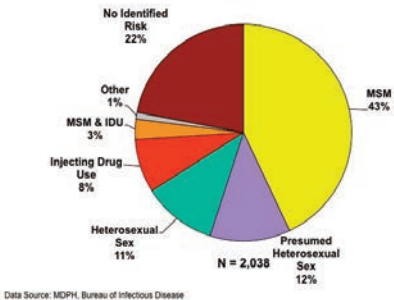
In 2012, there were 694 HIV infection diagnoses and 208 deaths among people reported with HIV/AIDS in Massachusetts. HIV infection diagnoses and deaths among people with HIV/AIDS continue to decline each year, but because infection diagnoses continue to exceed the number of deaths annually, the number of people known to be living with HIV/AIDS in Massachusetts has increased by 30% from 14,391 on December 31, 2003 to 18,698 on December 31, 2012.

From 2010 to 2012, of the 2,065 HIV infection diagnoses in Massachusetts, 1,503 (73%) were in men and 562 (27%) were in women. Most of the newly diagnosed HIV infections in men were in white (non-Hispanic) men, whereas the majority of newly diagnosed HIV infections in women were in black (non-Hispanic) women.

HIV Infection Diagnoses by Gender and Race/Ethnicity  
Massachusetts, 2010–2012



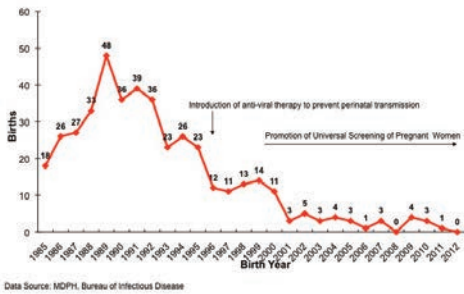
HIV Infection Diagnoses by Exposure Mode  
Massachusetts, 2010–2012



From 2010 to 2012, the primary exposure mode reported among HIV infection diagnoses in Massachusetts was male-to-male sex at 43%, followed by presumed heterosexual sex (12%), heterosexual sex (11%), and injection drug use (8%). Twenty-two percent of diagnoses were reported without adequate risk information.

Since the mid-1990s, Massachusetts has experienced a dramatic reduction in mother-to-child transmission of HIV infection. From 2003 to 2012, the number of HIV-infected newborns identified ranged from zero to four. The decline is attributed to improvements in HIV screening during pregnancy and the treatment of HIV-infected women with anti-retroviral therapy. However, every case of mother-to-child transmission remains a sentinel event mandating investigation to identify if new systems can be put in place to assure maximum efforts to prevent vertical transmission.

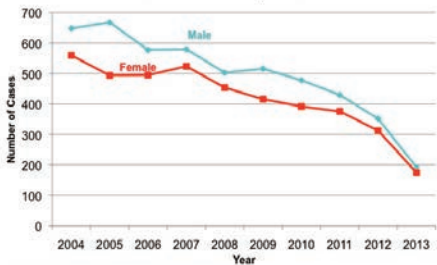
Identified Mother-to-Child Transmission of HIV Infection  
By Year of Birth, Massachusetts, 1985–2012





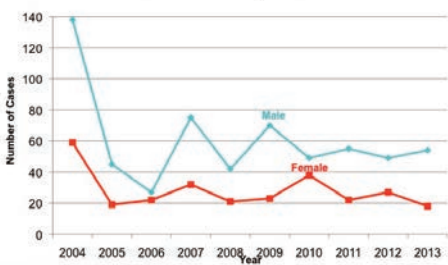
The number of confirmed cases of chronic hepatitis B reported in Massachusetts has been declining since 2005. In 2013, 368 confirmed chronic cases were reported. This number is likely to increase due to continued processing of case reports and case confirmation. Even so, there is an overall downward trend in both confirmed and probable cases of hepatitis B infection (data not shown), due in large part to almost universal immunization of children against hepatitis B. Any shifts in testing access for immigrants from endemic countries may also impact these numbers.

Confirmed Chronic Hepatitis B Cases by Gender and Year Massachusetts, 2004–2013



Note: N=1,144 and excludes 14 missing gender and 2 transgender  
Data Source: MDPH, Bureau of Infectious Disease

Confirmed Acute Hepatitis B Cases by Gender and Year Massachusetts, 2004–2013



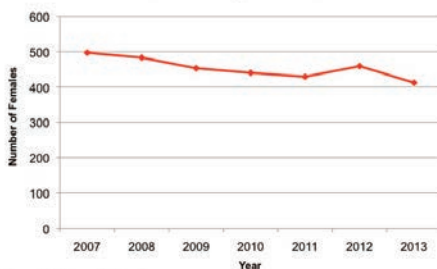
Note: N=885; Data Source: MDPH, Bureau of Infectious Disease

Seventy-two confirmed cases of acute hepatitis B were identified in 2013. Confirmation of acute infection requires additional information, including specific laboratory test results and information on symptoms, which are not always available to MDPH. Furthermore, acute HBV infection is often asymptomatic and those individuals are consequently unlikely to be aware of their status and seek care. Thus, the number of reported confirmed acute cases of hepatitis B virus infection is likely an underestimate of the true number of acute cases in the state.

PERINATAL HEPATITIS B PROGRAM

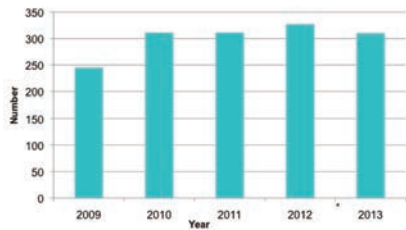
It is recommended that pregnant women be screened for hepatitis B during pregnancy to allow case management to begin early and prevent mother-to-child transmission of the virus to infants. Since 2007, the Perinatal Hepatitis B Program has partnered with local public health programs to increase identification of household and sexual contacts of hepatitis B surface antibody (HBsAg)-positive pregnant women in an effort to reduce transmission of hepatitis B. Babies of infected mothers can be protected by administration of hepatitis B immune globulin and hepatitis B vaccine (post-exposure prophylaxis or PEP). Uninfected contacts can be vaccinated to prevent infection.

Hepatitis B Positive Pregnant Females Identified in Massachusetts, 2007–2013



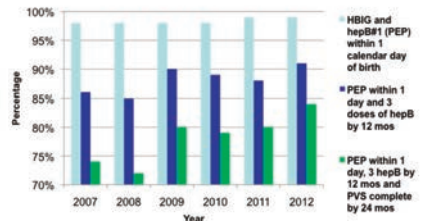
Data Source: MDPH, Bureau of Infectious Disease

Contacts to Hepatitis B Surface Antigen Positive Pregnant Females in Massachusetts, 2009–2013



\* Counts reflect contacts of HBsAg+ women by year of EDD. 2013 data are preliminary as of July 2014.  
Data Source: MDPH, Bureau of Infectious Disease

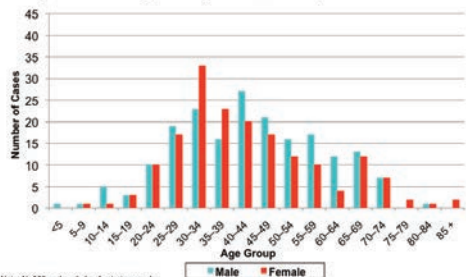
Infants Born to Hepatitis B Surface Antigen Positive Females in Massachusetts, 2007–2012



HBIG+ Hepatitis B Immune Globulin, PVS = Post-vaccine serological (testing)  
Data Source: MDPH, Bureau of Infectious Disease

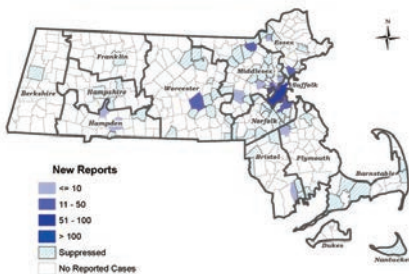
Due to enhanced surveillance focused on identifying pregnant women who are hepatitis B positive, a large number of the hepatitis B cases identified and reported in 2013 were in women between the ages of 20 and 39 years. While efforts are made to identify infection among the household and sexual contacts of these women, there are many barriers to getting those partners tested.

Confirmed Chronic Hepatitis B Cases Reported in 2013 by Five Year Age Groups and Gender, Massachusetts



Note: N=368 and excludes 1 missing gender  
Data Source: MDPH, Bureau of Infectious Disease

Confirmed Chronic Hepatitis B Cases by Massachusetts City/Town: 2013

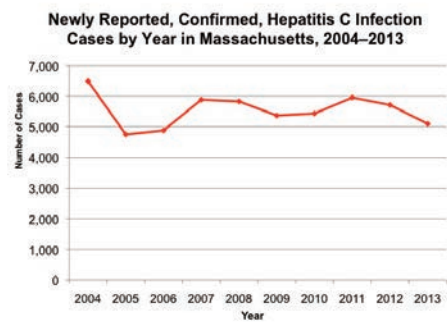


Data Source: MDPH, Bureau of Infectious Disease

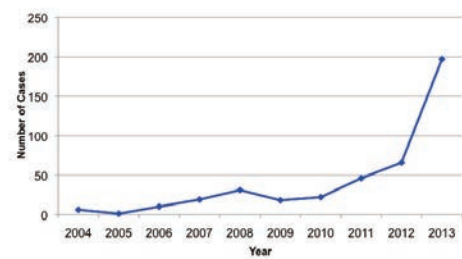
Most newly reported cases of chronic hepatitis B are in people living in urban areas such as Boston, Worcester, Lowell, and Springfield.



There has been an overall decline in the number of newly diagnosed hepatitis C cases reported in Massachusetts since 2004. However, the overall number of cases reported remains very high with 7,000 to 10,000 newly diagnosed probable and confirmed cases reported to MDPH annually since 2002. There were 5,098 hepatitis C cases reported to MDPH for 2013 but many reported cases have yet to be fully processed, so this number is likely to increase. Hepatitis C virus remains one of the highest volume infectious diseases reported in Massachusetts.

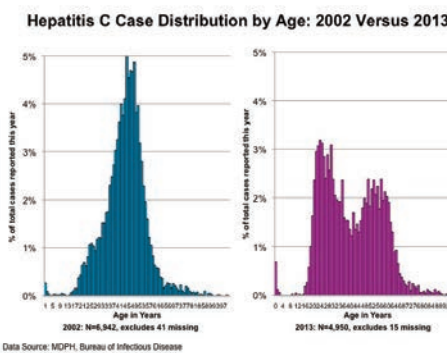


**Number of Confirmed Acute Hepatitis C Cases by Year in Massachusetts, 2004–2013**

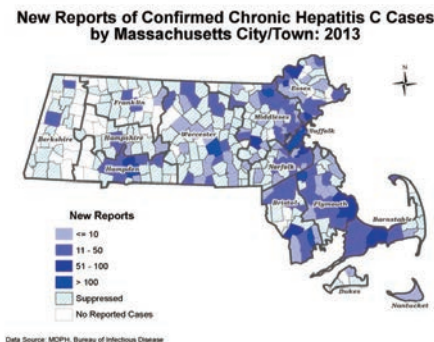
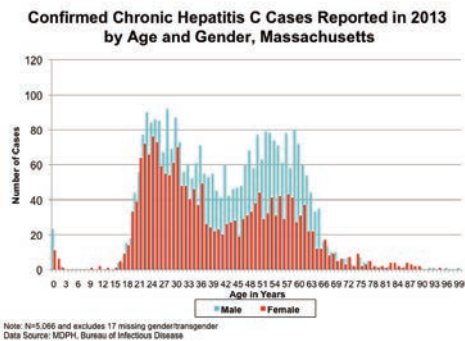


A change in the acute hepatitis C case definition was adopted by the Centers for Disease Control and Prevention (CDC) in 2013. Formerly, rule-out of hepatitis A and B infection was required to confirm a case. Due to the difficulty in obtaining these laboratory results, this led to a small number of confirmed acute cases. The increase seen in 2013 cases reflects the case definition change that lifted this requirement. Acute cases of hepatitis C are reported in CDC’s annual summary of notifiable diseases, while chronic hepatitis C is not.

The age distribution of hepatitis C cases reported in Massachusetts has changed between 2002 and 2013. In 2002 the reported cases were distributed in a curve with one age peak around 45 years. In 2013, the reported cases were distributed in a bi-modal curve with one peak at 25 years of age and a second at 55 years.



More hepatitis C cases reported in 2013 are identified in males than in females in almost all age groups, except the 15 to 19 year age group, where the number of females is slightly higher than males.

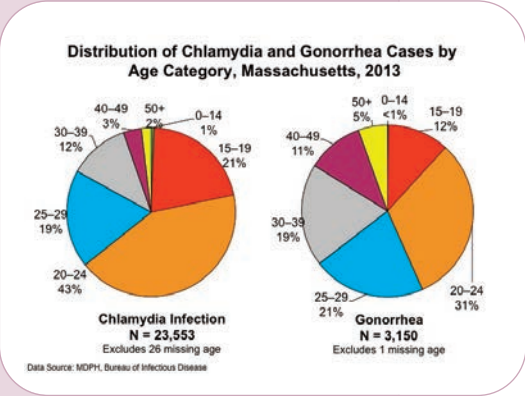


Cases of hepatitis C are reported in communities across Massachusetts, including urban, suburban, and rural areas of the state.

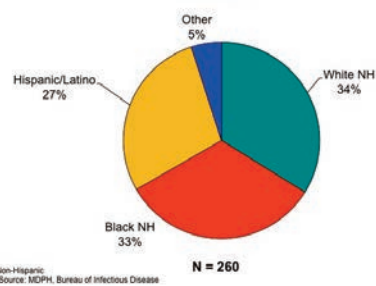
STDs AND HIV/AIDS IN ADOLESCENTS AND YOUNG ADULTS

Compared to older adults, sexually active adolescents and young adults are at higher risk for acquiring STIs because of a combination of behavioral, biological, and cultural factors. The higher prevalence of STIs among adolescents may also reflect multiple barriers to accessing quality STD prevention services, including lack of insurance/unwillingness to use parents' insurance due to confidentiality concerns, lack of other ability to pay for services in the absence of insurance, lack of transportation, discomfort with facilities and services designed for adults, and concerns about confidentiality. (Source: CDC. Sexually Transmitted Disease Surveillance, 2012. Atlanta: U.S. Department of Health and Human Services; 2014.)

In 2013, 64% of chlamydia cases and 43% of gonorrhea cases were reported in adolescents and young adults (ages 15-24).

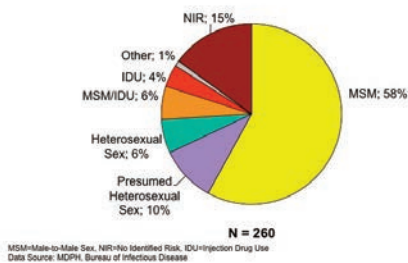


**HIV Infection Diagnoses in Adolescents and Young Adults (ages 15-24) by Race/Ethnicity, Massachusetts, 2010-2012**



From 2010 to 2012, HIV infection diagnoses among adolescents and young adults in Massachusetts had the following racial/ethnic distribution: white (non-Hispanic) (34%), black (non-Hispanic) (33%), Hispanic/Latino (27%), and other (5%).

HIV Infection Diagnoses in Adolescents and Young Adults (Ages 15-24) by Exposure Mode, Massachusetts, 2010-2012



From 2010 to 2012, the primary mode of exposure for HIV infection diagnoses in adolescents and young adults was male-to-male sex (58%), followed by presumed heterosexual sex (10%), heterosexual sex and MSM/IDU (both 6%), and injecting drug use (4%). Fifteen percent of adolescents and young adults were reported with no risk information.

The Youth Risk Behavior Survey (YRBS) is performed biennially among a sample of 9<sup>th</sup> to 12<sup>th</sup> grade students. A review of data provided from the Massachusetts YRBS over the past two decades indicates that three indicators of youth sexual behavior (ever having had sex, first sex before age 13 years, and four or more lifetime sexual partners) reached their lowest levels at the time in 2003 (respectively 41%, 5%, and 10%), and after slight increases of potential concern in 2009, decreased below 2003 levels (to 38%, 3%, and 9% in 2013). In contrast, two correlates of protective sexual behaviors, use of condoms at last sex and being taught about HIV/AIDS in school, have shown declines from previous gains (respectively 58% in 2013 down from 65% in 2005, and 85% in 2013 down from 93% in 2005).

REPORTED SEXUAL BEHAVIORS AMONG MASSACHUSETTS HIGH SCHOOL STUDENTS, 2003-2013

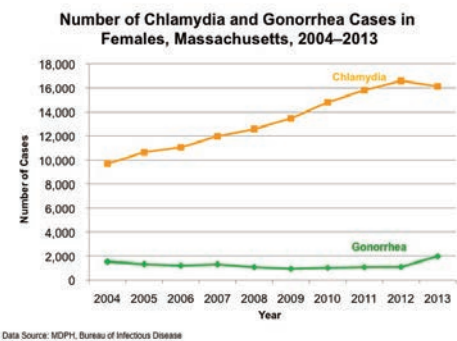
AFFIRMATIVE RESPONSES (percent)						
	2003	2005	2007	2009	2011	2013
Lifetime sexual intercourse	41	45	44	46	42	38
Sexual intercourse before age 13	5	5	6	5	4	3
Four or more lifetime sexual partners	10	13	12	13	11	9
Condom use at last sexual intercourse	57	65	61	58	58	58
Ever taught in school about AIDS or HIV	92	93	89	87	84	85

Data source: Massachusetts Department of Elementary and Secondary Education, Massachusetts Youth Risk Behavior Survey

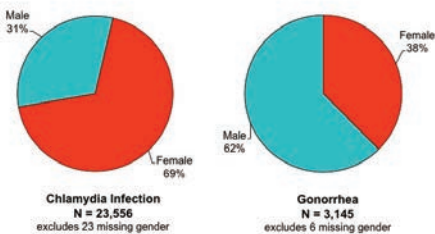
STDs AND HIV/AIDS IN WOMEN

In women, untreated STIs can lead to serious health consequences including pelvic inflammatory disease, infertility, ectopic pregnancy, and cervical cancer. Women are disproportionately impacted by STI complications because STIs are more likely to remain undetected, delaying treatment. While women are highly susceptible to infection anatomically, they are less likely to have symptoms and if they do exhibit symptoms, more likely to attribute them to something else. (Source: CDC. *CDC Fact Sheet, 10 Ways STDs Impact Women Differently from Men*. April 2011. Available at: <http://www.cdc.gov/nchhstp/newsroom/docs/STDs-Women-042011.pdf>.)

Unlike gonorrhea, chlamydia infection in Massachusetts is more commonly reported in women. From 2004 to 2013, the number of chlamydia cases in women increased by 80%, in part due to increased adoption of routine screening by Massachusetts healthcare providers, as recommended by the Centers for Disease Control and Prevention.



**Distribution of Chlamydia and Gonorrhea Cases by Gender, Massachusetts, 2013**

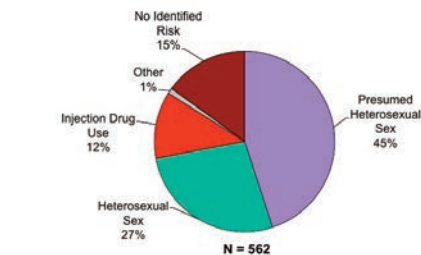


In 2013, women were over-represented among chlamydia cases by a ratio of 2.2 to 1. The greater number of chlamydia cases in women is attributable in part to increased screening in women as compared to men.

From 2012 to 2013, the number of gonorrhea cases among females increased by 9% (from 1,086 to 1,180) while the number of cases among males increased by 25% (from 1,578 to 1,965).

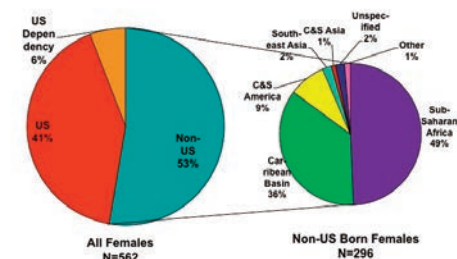
From 2010 to 2012, the exposure modes for the 562 HIV infection diagnoses reported in women in Massachusetts were attributed to presumed heterosexual sex (45%), heterosexual sex (27%), injection drug use (12%), and other exposure modes (1%). Fifteen percent of women were reported with no identified risk for HIV exposure.

Females Diagnosed with HIV Infection by Exposure Mode Massachusetts, 2010–2012



Data Source: MDPH, Bureau of Infectious Disease

Females Diagnosed with HIV Infection by Place of Birth Massachusetts, 2010–2012



Data Source: MDPH, Bureau of Infectious Disease

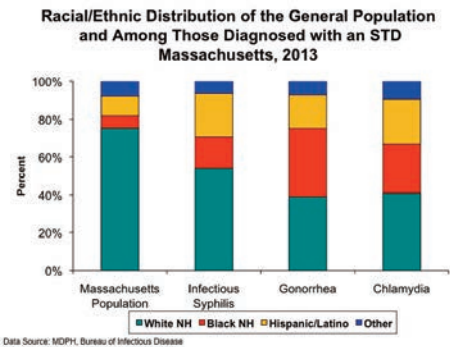
From 2010 to 2012, 53% of women diagnosed with HIV infection were born outside of the U.S. For men diagnosed from 2010 to 2012, only 26% were born outside of the U.S.

Eighty-five percent of women diagnosed with HIV infection who were born outside of the U.S. were born in regions of the world where heterosexual sex is the predominant mode of transmission of HIV infection.

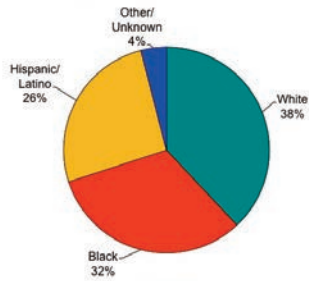
RACIAL/ETHNIC DISPARITIES IN STDs AND HIV/AIDS

As stated in the 2012 Sexually Transmitted Disease Surveillance Report from the Centers for Disease Control and Prevention (CDC), national surveillance data show higher rates of reported STIs among some racial or ethnic minority groups when compared with rates among white residents. Race and ethnicity in the United States are risk markers that correlate with other more fundamental determinants of health status such as poverty, unemployment, low educational attainment, access to quality health care, and living in communities with high prevalence of STDs. “Acknowledging the inequity in STD rates by race or ethnicity is one of the first steps in empowering affected communities to organize and focus on this problem.” (Source: CDC. *Sexually Transmitted Disease Surveillance*, 2012. Atlanta: U.S. Department of Health and Human Services; 2014.)

Although communities of color represent only 25% of the total Massachusetts population, these communities bear a disproportionate burden of STIs. In 2013, 46% of infectious syphilis cases, 61% of gonorrhea cases, and 59% of chlamydia cases occurred in individuals from communities of color.



**HIV Infection Diagnoses by Race/Ethnicity Massachusetts, 2010–2012**

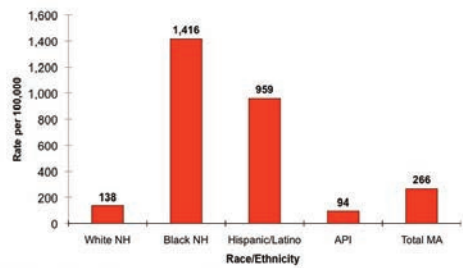


From 2010 to 2012, the racial/ethnic distribution of HIV infection diagnoses in Massachusetts was: white (non-Hispanic) (38%), black (non-Hispanic) (32%), Hispanic/Latino (26%), and other/unknown (4%).



In Massachusetts, in 2014, the prevalence rate of people living with HIV/AIDS was highest among the black (non-Hispanic) and Hispanic/Latino populations. As compared to the white (non-Hispanic) population, the rate of people living with HIV/AIDS was ten times higher among the black (non-Hispanic) population and seven times higher among the Hispanic/Latino population.

Age-Adjusted Rate of People Living with HIV/AIDS per 100,000 by Race/Ethnicity, Massachusetts, January 1, 2014

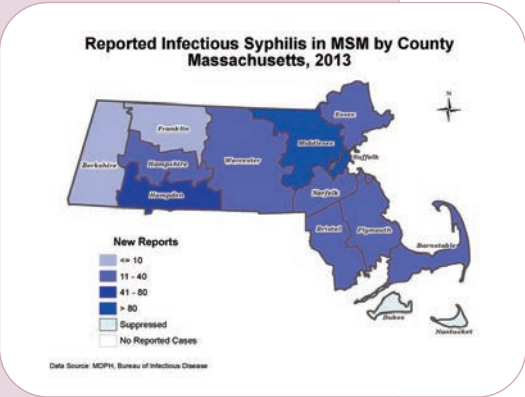


NH=Non-Hispanic, API=American Indian/Alaska Native, API=Asian/Pacific Islander.  
Data Source: MDPH, Bureau of Infectious Disease

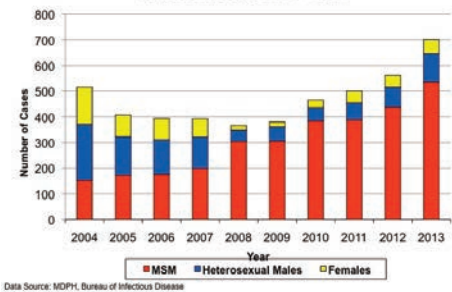
STDs AND HIV/AIDS IN MEN WHO HAVE SEX WITH MEN

Notifiable disease surveillance data on syphilis and data from the National Gonococcal Isolate Surveillance Project suggest that some STDs are increasing in MSM, including men who have sex with both men and women. Because STIs and the behaviors associated with acquiring them increase the likelihood of acquiring and transmitting HIV infection, the rise in STIs among MSM may be associated with the increase in HIV diagnosis among MSM. (Source: CDC. *Sexually Transmitted Disease Surveillance, 2012*. Atlanta: U.S. Department of Health and Human Services; 2014.)

In 2013, 536 infectious syphilis cases were reported in MSM in Massachusetts, of which 42% (N=223) were in Suffolk County.



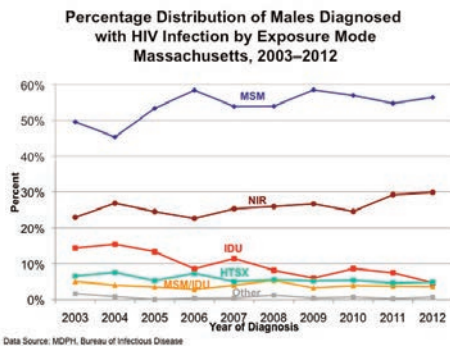
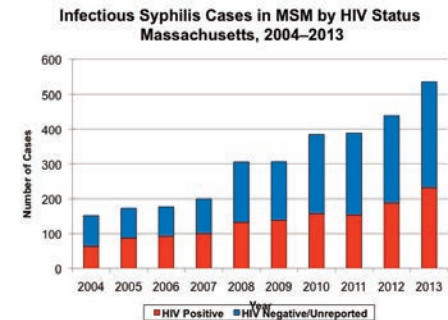
**Number of Infectious Syphilis Cases among MSM, Heterosexual Males, and Females, Massachusetts, 2004–2013**



The percentage of infectious syphilis cases that were among MSM increased from 29% in 2004 to 73% in 2013. During this time period the number of reported cases among MSM more than tripled, from 152 to 536.

The racial/ethnic distribution of infectious syphilis cases reported in 2013 among MSM was: white (non-Hispanic) (56%), black (non-Hispanic) (15%), Hispanic/Latino (19%), and other (6%). An additional 3% of cases were reported with unknown race/ethnicity. The median age of infectious syphilis cases reported among MSM was 35 years.

In 2013, 43% of the reported infectious syphilis cases in MSM occurred in individuals who reported they were HIV-positive.



Among males, the proportion of reported HIV infection cases with male-to-male sex as the reported mode of exposure increased from 49% in 2003 to 61% in 2012.

SUMMARY OF STRENGTHS AND LIMITATIONS OF DATA

	HIV/AIDS Case Data	STD Case Data	Viral Hepatitis Case Data
Description	<ul style="list-style-type: none"><li>• Collected by MDPH Bureau of Infectious Disease, HIV/AIDS Surveillance Program.</li><li>• Reportable statewide.</li><li>• All licensed healthcare providers are required by law to report.</li><li>• HIV infection and AIDS cases are reported by name.</li><li>• Individuals diagnosed out of state have been excluded in analysis.</li></ul>	<ul style="list-style-type: none"><li>• Collected by MDPH Bureau of Infectious Disease, Division of STD Prevention.</li><li>• Reportable statewide.</li><li>• All laboratories and healthcare providers are required by law to report STIs (including syphilis, gonorrhea, chlamydia infection, lymphoma granuloma venereum, chancroid, granuloma inguinale, neonatal herpes infection).</li></ul>	<ul style="list-style-type: none"><li>• Collected by MDPH Bureau of Infectious Disease, Office of Integrated Surveillance and Informatics Services.</li><li>• Reportable statewide.</li><li>• All laboratories and healthcare providers are required to report cases, or laboratory indicators, of hepatitis B and C infection.</li></ul>
Strengths	<ul style="list-style-type: none"><li>• Statewide reporting, population-based.</li><li>• Risk information is available.</li><li>• Completeness of reporting is high.</li><li>• Comparable with other states.</li></ul>	<ul style="list-style-type: none"><li>• Statewide reporting, population-based.</li><li>• Comparable with other states.</li><li>• Enhanced reporting of positive laboratory results.</li></ul>	<ul style="list-style-type: none"><li>• Statewide reporting, population-based.</li><li>• Enhanced reporting of acute cases, hepatitis B cases in child-bearing aged women and children and hepatitis C infection among cases ages 15–25.</li></ul>
Limitations	<ul style="list-style-type: none"><li>• Under-reporting (10%–15%) hampers interpretation of HIV/AIDS case data.</li><li>• Not all HIV/AIDS cases are reported at time of diagnosis (reporting lag).</li><li>• HIV/AIDS data may be incomplete because some HIV-infected people may not have been tested or have entered care.</li></ul>	<ul style="list-style-type: none"><li>• Under-reporting of up to 10% of STD cases.</li><li>• Race/ethnicity is missing in 34% of chlamydia, 25% of gonorrhea and 6% of infectious syphilis cases.</li><li>• Bias is introduced for some STDs, such as chlamydia infection, where screening of asymptomatic persons occurs more frequently in women than in men.</li></ul>	<ul style="list-style-type: none"><li>• Race data are missing in 24% of confirmed chronic hepatitis B and 41% of confirmed hepatitis C cases in 2013; ethnicity data are missing in 40% of confirmed chronic hepatitis B and 59% of confirmed hepatitis C cases in 2013.</li><li>• Risk history data is missing in a majority of reported hepatitis B and C cases.</li></ul>

## INTERPRETING STD AND HIV/AIDS DATA

All viral hepatitis data reported are current as of June 11, 2014, all HIV/AIDS data are as of January 1, 2014, and all STD data are as of June 27, 2014.

### I. HIV/AIDS Exposure Mode Definitions

The HIV/AIDS exposure mode indicates the most probable risk behavior associated with HIV infection. Assignment of exposure mode is done in accordance with Centers for Disease Control and Prevention guidelines when multiple exposure modes are reported. Following is a description of the exposure mode categories:

- **MSM (Male to Male Sex):** Includes men who report sexual contact with other men, and men who report sexual contact with both men and women. Please note the acronym MSM is also used to refer to “men who have sex with men”.
- **IDU (Injection Drug Use):** Cases in persons who report injection drug use.
- **MSM/IDU:** Cases in men who report both injection drug use and sexual contact with other men.
- **Heterosexual Sex:** Cases in persons who report specific heterosexual sex with a person with, or at increased risk for, HIV infection (e.g. an injection drug user). The sub-categories for this mode of transmission are listed below.
  - Heterosexual Sex w/ an Injection Drug User
  - Heterosexual Sex w/ a person w/ HIV infection or AIDS
  - Heterosexual Sex w/ Bisexual male
  - Other Heterosexual Sex: Includes all other sub-categories of risk, such as heterosexual contact with a person infected through a blood transfusion.
- **Presumed Heterosexual:** Cases among females who report heterosexual sex but do not report any other personal risk or any knowledge of specific risk in their male sex partners. As of January 1, 2011, males that were previously grouped in this category are categorized as No Identified Risk. Presumed Heterosexual is an exposure mode category used by the Massachusetts HIV/AIDS Surveillance Program. The Centers for Disease Control and Prevention (CDC) categorizes these cases as No Identified Risk.
- **Pediatric:** Infection before the age of 13 years, including mother to child transmission through pregnancy, childbirth or breastfeeding and blood transfusions to children.
- **NIR (No Identified Risk):** Cases in persons with no reported history of exposure to HIV through any of the listed exposure categories. Follow-up is conducted to determine risk for those cases that are initially reported without a risk identified. Includes cases among men who were previously categorized as Presumed Heterosexual.

### II. References to Newly Diagnosed HIV Infections

Due to reporting delays related to site-specific reporting issues, all HIV/AIDS data reflect HIV diagnosed through 2012. Newly diagnosed HIV infections/cases include all persons diagnosed with HIV in 2012, including those who were concurrently or subsequently diagnosed with AIDS.

### III. Race/Ethnicity of STD and HIV/AIDS Cases

Race/ethnicity references to white residents and black residents represent persons who are white non-Hispanic and black non-Hispanic, respectively. All references to Hispanic/Latino for race/ethnicity represent persons of Hispanic/Latino heritage regardless of race.

### IV. STD Case Reports and Analyses

All information on STD cases reflect year of report and all incidence calculations represent crude rates. The source of denominators for calculating rates was the Annual Estimates of the Resident Population for Selected Age Groups by Sex for the United States, States, Counties, and Puerto Rico Commonwealth and Municipalities: April 1, 2010 to July 1, 2013; Source: U.S. Census Bureau, Population Division; Release Date: June 2014 and Table 2. Intercensal Estimates of the Resident Population by Sex and Age for Massachusetts: April 1, 2000 to July 1, 2010 (ST-EST00INT-02-25); Source: U.S. Census Bureau, Population Division; Release Date: October 2012. The distribution of STD cases with unknown race/ethnicity has changed from previous issues of this report: cases with unknown race/ethnicity are now removed from the analyses instead of redistributed. Due to this change, STD incidence rates by race/ethnicity are lower for all years than previously reported.

### V. Cell Suppression Methodology of STD and HIV/AIDS Data

Values less than five are suppressed for populations less than 50,000 or for unknown values. Additional values may be suppressed to prevent back calculation.

## STD, HIV/AIDS AND VIRAL HEPATITIS CONTACT INFORMATION

Division of STD Prevention & HIV/AIDS Surveillance, and Ratelle STD/HIV Prevention Training Center			
Topic	Contact	Email	Phone
Policy Development and Administration	Brenda Cole ( <b>STD Division Director</b> )	BrendaCole@state.ma.us	617-983-6941
Sylvie Ratelle STD/HIV Prevention Training Center	Katherine Hsu ( <b>Medical Director</b> ) Janine Dyer ( <b>Deputy Director</b> )	Katherine.Hsu@state.ma.us Janine.Dyer@state.ma.us	617-983-6948 617-983-6964
STD/HIV/AIDS Surveillance and Epidemiology	Betsey John ( <b>Director, HIV/AIDS and STD Surveillance</b> )	Betsey.John@state.ma.us	617-983-6570
STD Clinical Services	Katherine Hsu ( <b>Medical Director</b> ) Barbara Coughlin ( <b>Public Health Nurse</b> )	Katherine.Hsu@state.ma.us Barbara.Coughlin@state.ma.us	617-983-6948 413-586-7525
STD Disease Intervention Field Services and STD Partner Notification	David Goudreau ( <b>Field Operations Manager</b> )	David.Goudreau@state.ma.us	617-983-6835
STD Health Education, Training, and Prevention	Brenda Hernandez ( <b>Special Projects Coordinator</b> ) Laura Smock ( <b>IPP Coordinator</b> )	Brenda.Hernandez@state.ma.us Laura.Smock@state.ma.us	617-983-6943 617-983-6961
Office of HIV/AIDS			
Policy, Planning, Resource Allocation, Capacity Building,	Dawn Fukuda ( <b>Director, Office of HIV/AIDS</b> ) Tammy Goodhue ( <b>Director of Capacity Building and Health Communications</b> )	Dawn.Fukuda@state.ma.us Tammy.Goodhue@state.ma.us	617-624-5303 617-624-5338
Administration and Finance, Personnel, Contracts and Procurement, Budget	Bob Carr ( <b>Deputy Bureau Director</b> ) Ceci Dunn ( <b>Director of Disease Response Systems</b> ) Cheryl Bernard ( <b>Director of Administration and Finance</b> ) Terry McCue ( <b>Contracts and Procurement Director</b> ) Nadia ElKamouss ( <b>Fiscal Director</b> )	Bob.Carr@state.ma.us Ceci.Dunn@state.ma.us Cheryl.Bernard@state.ma.us Terry.McCue@state.ma.us Nadia.ELKamouss@state.ma.us	617-624-5317 617-624-5370 617-624-5355 617-624-5858 617-624-5352
Population Health and Community Engagement, Consumer Office	Barry Callis ( <b>Director of Behavioral Health and Infectious Disease Prevention</b> ) Paul Goulet ( <b>Director of Consumer Office</b> ) Tammy Goodhue ( <b>Director of Capacity Building and Health Communications</b> )	Barry.Callis@state.ma.us Paul.B.Goulet@state.ma.us Tammy.Goodhue@state.ma.us	617-624-5316 617-624-5389 617-624-5338
Medical Case Management and Health Related Support Services, Prevention and Screening, Contracts	Linda Goldman ( <b>Director of Health Program and Disease Prevention</b> )	Linda.Goldman@state.ma.us	617-624-5347
Viral Hepatitis Program			
Viral Hepatitis Programs	Daniel Church ( <b>Viral Hepatitis Prevention Coordinator, Division of Epidemiology and Immunization</b> )	Daniel.Church@state.ma.us	617-983-6830
Viral Hepatitis Surveillance and Epidemiology	Kerri Barton ( <b>Epidemiologist</b> ) Shauna Onofrey ( <b>Viral Hepatitis Surveillance Coordinator</b> )	Kerri.Barton@state.ma.us Shauna.Onofrey@state.ma.us	617-983-6876 617-983-6776

# STD, HIV/AIDS AND VIRAL HEPATITIS RESOURCES

## Training

Professional training to community based organizations, local public health departments, and medical providers can be requested and is free of charge.

Type of Training	Contact Information and Website
STD Education, STD Partner Notification, and STD Reporting	617-983-6940 <a href="http://www.mass.gov/dph/cdc/std">www.mass.gov/dph/cdc/std</a>
HIV/AIDS Reporting and Surveillance Projects	617-983-6560 <a href="http://www.mass.gov/dph/cdc/aids">www.mass.gov/dph/cdc/aids</a>
HIV/AIDS Provider Trainings	617-624-5338 <a href="http://www.mass.gov/dph/aids">www.mass.gov/dph/aids</a>
Viral Hepatitis Education	617-983-6830 <a href="http://www.mass.gov/eohhs/consumer/wellness/disease-prevention/communicable-diseases/hepatitis/hepatitis-c/viral-hepatitis-educational-materials.html">http://www.mass.gov/eohhs/consumer/wellness/disease-prevention/communicable-diseases/hepatitis/hepatitis-c/viral-hepatitis-educational-materials.html</a>
STD/HIV Diagnosis, Treatment, and Management	617-983-6945 <a href="http://www.RatellePTC.org">www.RatellePTC.org</a>

## Material and Clinical Toolkits

Health education materials and clinical toolkits can be requested free of charge.

Type of Material	Contact Information and Website
STD, HIV, Viral Hepatitis Fact Sheets	617-983-6940 <a href="http://www.mass.gov/eohhs/gov/departments/dph/prog-a-j/bcdc/factsheets.html">http://www.mass.gov/eohhs/gov/departments/dph/prog-a-j/bcdc/factsheets.html</a>
HIV/AIDS Reporting for Health Care Providers Brochure	617-983-6560 <a href="http://www.mass.gov/eohhs/provider/reporting-to-state/diseases-and-conditions/hiv-aids/hiv-reporting-in-mass-for-health-care-providers.html">www.mass.gov/eohhs/provider/reporting-to-state/diseases-and-conditions/hiv-aids/hiv-reporting-in-mass-for-health-care-providers.html</a>
Viral Hepatitis Posters and Brochures	617-983-6800 <a href="http://www.maclearinghouse.com/category/HEP.html">http://www.maclearinghouse.com/category/HEP.html</a>
STD/HIV Diagnosis, Treatment, and Management Toolkits	617-983-9645 <a href="http://www.RatellePTC.org">www.RatellePTC.org</a>

## MDPH and MDPH Funded Websites

Division of STD Prevention  
HIV/AIDS Bureau  
HIV/AIDS Surveillance  
Viral Hepatitis Program  
Sylvie Ratelle STD/HIV Prevention Training Center

[www.mass.gov/dph/cdc/std](http://www.mass.gov/dph/cdc/std)  
[www.mass.gov/dph/aids](http://www.mass.gov/dph/aids)  
[www.mass.gov/dph/cdc/aids](http://www.mass.gov/dph/cdc/aids)  
[www.mass.gov/hepc](http://www.mass.gov/hepc)  
[www.RatellePTC.org](http://www.RatellePTC.org)

## National Websites

Center for Disease Control and Prevention  
Division of STD Prevention  
Division of HIV/AIDS Prevention  
Division of Viral Hepatitis  
National Network of STD/HIV Prevention  
Training Centers  
CDC funded viral hepatitis online training

[www.cdc.gov](http://www.cdc.gov)  
[www.cdc.gov/std](http://www.cdc.gov/std)  
[www.cdc.gov/hiv](http://www.cdc.gov/hiv)  
[www.cdc.gov/ncidod/diseases/hepatitis](http://www.cdc.gov/ncidod/diseases/hepatitis)  
  
[www.nnptc.org](http://www.nnptc.org)  
<http://depts.washington.edu/hepstudy/>